



RHODE ISLAND

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Office of Water Resources

Design Guidance for OWTS Repairs – Island Park and Portsmouth Park Neighborhoods, Portsmouth

Effective Date: July 11, 2013 **Revision Date:** April 18, 2014

Program Regulation: Rules Establishing Minimum Standards relating to Location, Design, Construction and Maintenance of Onsite Wastewater Treatment Systems (OWTS July 9, 2012)

Supersedes: August 22, 2013

Approved By: Brian Moore, Chief, Groundwater & Wetland Protection

Purpose: This guidance document provides information on design requirements for OWTS repairs in certain neighborhoods in Portsmouth where DEM has reason to believe that the minimum design requirements stated in regulation may not be met. Water quality violations in certain waters of the state, namely the “The Cove” and the Sakonnet River have led to the development of this guide. This guidance is intended to ensure that all repairs to OWTS in these areas will not, to the extent reasonably possible, pose a threat to the integrity of these state waters.

Applicability: This guidance applies to parcels within the borders of specific geographic areas, as follows:

- **Island Park:** bordered by The Sakonnet River to the south and east, Boyd’s Lane to the west and The Cove to the north up to the bridge over the channel connecting the The Cove with the Sakonnet River.
- **Portsmouth Park:** bordered by Morningside Lane to the south, East Main Road and Chase Road to the west, Boyd’s Lane to the north, and the Sakonnet River to the east.

Background: DEM performed sanitary shoreline surveys along the shores of Portsmouth Park and Island Park between 2003 through 2010. These surveys revealed the presence of fecal bacteria in drainage pipes both during dry weather and wet weather. Evidence of sewage in drainage pipes and groundwater seeps along the shoreline in both areas resulted in the issuance of an advisory by the Rhode Island Department of Health not to swim within two hundred feet of drainage pipes and in the vicinity of the areas where water seeps from the ground. A report entitled “Draft Wastewater Facility Plan Update - Island Park, Portsmouth Park, and the Hummuck, Town of Portsmouth, Rhode Island” date October 2002 prepared by The Louis Berger Group, Inc. included the following findings and conclusions:

- Island Park is a high-density residential neighborhood in a flat, seaside area; specifically, it has: ...(v) highly permeable soils (with percolation rates ranging from two to fifteen minutes per inch, with a majority of rates being five minutes per inch or less). The rate of less than five minutes per inch would indicate that the soils within the septic systems or cesspools would have a lesser degree of treatment following subsurface disposal and the residence time may not be adequate to allow pathogen decay prior to groundwater flow to either The Cove or the Sakonnet River
- Portsmouth Park is a medium to medium/high density residential neighborhood on a hillside; specifically, it has: ...(v) soils with percolation rates ranging from fifteen to thirty minutes per inch along sloped areas that can lead to surface breakout and create a perched saturated zone flowing at the interface of the subsoil and substratum soil layers; and (vi) the presence of dry weather flows in the Portsmouth pipes throughout a majority of the year indicating a water table close to the ground surface or the presence of a perched zone of saturation along the interface of the subsoil and substratum soil layers. The elevated ground water table or perched zone of saturation can serve as a conduit for untreated or undertreated sewage to flow downhill into the Portsmouth pipes.

The above factors indicate that many OWTS may not be performing effectively so as to adequately reduce pathogen threats to recreational waters and the public. In addition, special measures appear necessary for the design of repairs and replacement systems to ensure that all newly constructed systems perform optimally.

Regulatory Authority:

The DEM “Rules Establishing Minimum Standards relating to Location, Design, Constuction, and Maintenance of Onsite Wastewater treatment Systems” (OWTS Rules- <http://www.dem.ri.gov/pubs/regs/regs/water/owts 12.pdf>) provide the Department with discretion in approving applications for repair (Rule 17.7.2) on lots with limiting conditions.) As such, each application is reviewed on a case-by-case basis with the objective that the design meets the requirements of the regulations to the greatest extent possible and environmental and public health risks are minimized.

- Rule 8.7 of the OWTS Rules provides that no person shall discharge or allow the entrance of wastewater, treated or untreated, into any watercourse, nor shall they discharge or permit entrance of such wastewater into any open or covered drain tributary to such watercourse without the approval of the Director.
- Rule 9.1 provides that Class 1 designers are authorized to design repairs to OWTS for most single family homes using conventional technology. [However, for most parcels of land in the subject neighborhoods, the conditions are such that the OWTS standards cannot be met and advanced treatment technology may be required in many cases to mitigate impacts. Designs for advanced technology, or alternative technology, cannot be submitted by Class I designers.]
- As stated in Rule 17.7.1, the department may specify that a soil testing be performed for repair applications.
- Rule 18.1 allows that “nothing in these Rules shall prevent the Director from requiring any additional information deemed necessary to carry out the obligations in enforcing these Rules”.
- Rule 18.4 stipulates the minimum requirements for plan submittal for a repair application. The requirements are listed on the Department’s “OWTS repair Submission Requirements” document. The rule states that the Director reserves the right to require other information deemed necessary by the Department to fulfill its obligations in accordance with the applicable regulations on a case-by-case basis. [Due to the difficult siting conditions on lots in these two neighborhoods, additional engineering investigation and data gathering are needed which can only performed by a Class III designer.]

Guidelines: In addition to the minimum requirements stated explicitly in the OWTS Rules and referenced documents, the following additional testing, design and submittal requirements will apply to all residential and commercial repair applications for construction approval for OWTS on lots located within the neighborhood areas described above:

- All OWTS applications for construction approval shall be prepared by a Class III designer.
- A soil evaluation shall be required and be witnessed by the Department unless specifically waived by the Department.
- The designer is required to inspect basements and research available records for evidence of illegal connections to non-sanitary drains, the presence of subdrains, foundation drains, or sump pumps, and all points of discharges of wastewater. Foundations on other properties within 25 feet of a leachfield shall be assumed to have a French drain or subdrain unless information is provided showing otherwise.
- The designer is required to locate all drain and subdrain pipes, and other drainage structures or conveyances within 50 feet of the any proposed leachfield or drainfield. This shall require inspection of plans available at the Town of Portsmouth.
- The locations of coastal features, wetlands and watercourses within 200 feet of the leachfield and any components of the OWTS shall be depicted on the plans.
- The locations of water lines within 50 feet of the leachfield and any components of the OWTS shall be depicted on the plans.
- Deviations from any standard contained in the OWTS Rules shall be identified in writing, along with documentation supporting why the standard cannot be met and the actual or potential impacts from not meeting the standard.
- The following setback table will apply to all repairs in Island Park and Portsmouth Park;

Distance from Coastal Feature to Any OWTS Component	OWTS Requirement for systems <5000 gpd
Less than 25 feet	Zero Discharge System required.
Between 25 and 50 feet	Zero Discharge System or an approved Alternative/Experimental (A/E) system.
Beyond 50 feet	Any system that fully complies with all applicable regulations (DEM, CRMC, zoning, etc.), or A/E System.
Distance from any storm drain	
Less than 25 feet	Zero Discharge System required.
Beyond 25 feet	Any system that fully complies with all applicable regulations (DEM, CRMC, zoning, etc.), or A/E System.

The location of the coastal feature must be shown on the site plans.

Please note that no expansion of use or increase in wastewater flow is allowed under a repair application. On some properties there may not be enough land available to place the zero discharge system on the property in question. Applicants will need to coordinate with the Town and/or adjacent properties to site the repair system. Recorded easements will be required.

Zero Discharge System:

Zero Discharge Systems include, but are not limited to:

- Holding tanks for all wastewater; or
- Compost toilet or incinerator toilet for blackwater and a holding tank for graywater.

A/E Technology:

A listing of Department approved A/E technology may be found at:

<http://www.dem.ri.gov/programs/benviron/water/permits/isds/pdfs/ialist.pdf>

Holding Tank Requirements:

Holding tanks must comply with Rule 28 of the OWTS Rules and the OWTS Holding Tank Policy#OWR-OWTS-01-2010 excluding conditions #2 and #5. The application must include a copy of the executed contract with a permitted septage transporter.

Priority with respect to other standards:

Any proposed reduction in separation distances to water lines or water services must be approved by the local water utility and meet all construction requirements including sleeving or relocation.

Please note that local building or zoning codes may apply and affect the location of OWTS components. Local requirements should be taken into consideration during design.

Easements:

Applicants may propose obtaining rights or easements to nearby properties for OWTS components, including leachfields, where such option will achieve greater compliance with this guidance or standards in the OWTS rules. Fully executed agreements, easements and local approvals for street crossings, in proper legal form, must be submitted with the application.

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